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Macalester College 1998-99 Annual Energy Summary

Macalester College

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**MACALESTER
COLLEGE**

1998-99

**ANNUAL ENERGY
SUMMARY**

MACALESTER COLLEGE

ANNUAL ENERGY SUMMARY

1998-1999

INTRODUCTION: The information contained in this booklet summarizes the energy consumption for the period of June 1, 1998 through May 31, 1999. The figures contained herein reflect energy consumption by the central steam plant and campus electrical loop; energy consumption by campus buildings not on these systems are not reflected in this report. Unless otherwise noted energy consumption figures and costs are based on actual billings from energy suppliers (Marathon-Ashland, Northern States Power Gas and Electric, Koch Refining). Throughout this summary the word "fuel" may denote natural gas, #2 or #6 fuel oil.

YEAR IN REVIEW

During the 1998-99 the central plant consumed approximately 131 billion btus of energy. Fuel consumption accounted for 66 percent of this total with electricity accounting for the remaining 34 percent. Conversely at \$626,696.94 electricity costs accounted for 76 percent of the total energy costs for the year while fuel at \$193,635.41 totaled only 24 percent. Overall campus energy costs fell \$88,350 below budgeted levels. Fuel savings accounted for \$102,547 in total savings while electrical costs exceeded budgeted levels by \$14,196.

FUEL CONSUMPTION: During 1998-99 fuel consumption totaled 86.689 billion btus for a total cost of \$197,479 or an average cost of \$.227 per one hundred thousand btus. This is the third lowest fuel consumption figure in the past fifteen years. For an interesting comparison review the similarities in degree days, fuel consumption and costs between 1986-87 and 1998-99. Today, our campus contains 200,000 additional square feet of conditioned space yet requires less fuel btus as compared to thirteen years ago. Unfortunately this good news is offset by the fact the campus continues to trade relatively cheap energy (fuel) with more expensive energy (electricity). In the same time period electrical expenditures increased from \$330,664 in 1986-87 to \$626,697 in 1998-99.

ELECTRICITY CONSUMPTION: As noted above electricity usage totaled \$626,696.94 during 1998-99 or an increase of 2.08 percent over 1997-98. The increase isn't attributable to any specific building but general increase across campus. Olin-Rice continues to be the major consumer on campus followed by library, campus chiller, and gym-pool complex. The library's consumption did drop by approximately 50,000 kWh. This number is in line with the anticipated savings through the lighting retrofit which occurred during the late fall and winter.

SUMMARY: The last two mild winters provided significant fuel savings offsetting the significant initial increase in electrical expenses caused by the renovated Olin-Rice Complex during 1996-97. But even with these savings the campus must anticipate a minimum total energy expense in excess of \$830,000 per year without significant price increases. If we experience

another winter as we did in 1996-97 we should anticipate total annual energy costs in excess of \$900,000.

Physical Plant continues to look for equipment and scheduling to provide the most efficient use of our energy dollars. But campus awareness of energy consumption (especially electrical consumption) needs to improved. Increased awareness and community expectations of energy conservation will provide the greatest energy savings at the least cost while not affecting program.

energy.annrpt99

1998-99 FUEL & ELECTRICITY CONSUMPTION

		JUN	JUL	AUG	SEP
GAS	QUANTITY-CCF	0	0	0	9,014
	COST-\$	\$288.75	\$288.76	\$288.75	\$2,018.24
	UNIT COST	0	0	0	\$0.24
	CCF BTUS(X1000)	0	0	0	901,400
#2 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	0.0000	0.0000	0.0000
#6 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	0.0000	0.0000	0.0000
	OIL BTUS(X1000)	0	0	0	0
TOTAL HEATING BTU (X100k)	QUANTITY-BTU(x1K)	0	0	0	901,400
ELECTRICITY	QUANTITY-KWH	1,012,800	1,022,400	1,212,000	1,128,000
	# BILLING DAYS	30	29	33	28
	KWH PER DAY	33,760	35,255	36,727	40,286
	COST-\$	\$56,859.53	\$54,769.44	\$61,577.19	\$61,033.56
	UNIT COST	0.056	0.054	0.051	0.054
	QUANTITY KW	2,376	2,208	2,280	2,448
	COST-\$	\$19,744.56	\$18,348.48	\$18,946.80	\$20,342.88
	BTUS(X1000)	3,455,674	3,488,429	4,135,344	3,848,736
<u>TOTAL CAMPUS BTU CONSUMPTION X 10MIL</u>		<u>346</u>	<u>349</u>	<u>414</u>	<u>475</u>
# STEAM GENERATED		0	0	0	0
BOILER EFFICIENCY (BTU STEAM/BTU F		0.0%	0.0%	0.0%	0.0%
HEATING DEGREE DAY - ACTUAL (MAC)		80	0	1	67
COOLING DEGREE DAY - ACTUAL (MAC)		113	259	210	125
Chiller - New Central Plant		419	633	584	468
Run - Old Central Plant		0	0	0	0
Times - Chapel		0	171	210	157

1997-98 FUEL & ELECTRICITY CONSUMPTION

		JUN	JUL	AUG	SEP
GAS	QUANTITY-CCF	0	0	0	0
	COST-\$	\$288.75	\$288.76	\$288.75	\$288.75
	UNIT COST	0	0	0	0
	CCF BTUS(X1000)	0	0	0	0
#2 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	0.0000	0.0000	0.0000
#6 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	0.0000	0.0000	0.0000
	OIL BTUS(X1000)	0	0	0	0
TOTAL HEATING BTU (X100k)	QUANTITY-BTU(x1K)	0	0	0	0
ELECTRICITY	QUANTITY-KWH	940,800	979,200	1,008,000	1,135,200
	# BILLING DAYS	29	29	31	29
	KWH PER DAY	32,441	33,766	32,516	39,145
	COST-\$	\$51,716.17	\$50,880.21	\$52,281.52	\$64,303.48
	UNIT COST	0.055	0.052	0.052	0.057
	QUANTITY KW	2,232	2,280	2,040	2,592
	COST-\$	\$18,547.92	\$18,946.80	\$16,952.40	\$21,539.52
	BTUS(X1000)	3,210,010	3,341,030	3,439,296	3,873,302
<u>TOTAL CAMPUS BTU CONSUMPTION X 10MIL</u>		<u>321</u>	<u>334</u>	<u>344</u>	<u>387</u>
# STEAM GENERATED		0	0	0	0
BOILER EFFICIENCY (BTU STEAM/BTU F		0.0%	0.0%	0.0%	0.0%
HEATING DEGREE DAY - ACTUAL (MAC)		10	21	29	97
COOLING DEGREE DAY - ACTUAL (MAC)		192	215	131	34
Chiller - New Central Plant		513	519	519	328
Run - Old Central Plant		0	0	0	0
Times - Chapel		269	349	274	266

1998-99 FUEL & ELECTRICITY CONSUMPTION

		OCT	NOV	DEC	JAN
GAS	QUANTITY-CCF	70,392	110,844	136,160	185,742
	COST-\$	\$16,469.39	\$26,298.58	\$33,735.73	\$41,044.13
	UNIT COST	0.234	0.237	0.248	0.221
	CCF BTUS(X1000)	7,039,200	11,084,400	13,616,000	18,574,200
#2 FUEL OIL	QUANTITY-GAL	0	0	10,397	0
	COST-\$	\$0.00	\$0.00	\$3,784.51	\$0.00
	UNIT COST	0.0000	\$0.00	0.3640	0.0000
#6 FUEL OIL	QUANTITY-GAL	0	0	73	0
	COST-\$	\$0.00	\$0.00	\$32.85	\$0.00
	UNIT COST	0.0000	0.0000	0.4500	0.0000
	OIL BTUS(X1000)	0	0	1,456,133	0
TOTAL HEATING BTU (X100k)	QUANTITY-BTU(x1K)	7,039,200	11,084,400	15,072,133	18,574,200
ELECTRICITY	QUANTITY-KWH	1,128,000	945,600	1,195,200	1,056,000
	# BILLING DAYS	30	27	36	32
	KWH PER DAY	37,600	35,022	33,200	33,000
	COST-\$	\$52,785.32	\$46,722.90	\$51,000.75	\$45,236.65
	UNIT COST	0.047	0.049	0.043	0.043
	QUANTITY KW	2,208	2,208	1,920	1,824
	COST-\$	\$12,497.82	\$12,497.28	\$10,867.20	\$10,323.84
	BTUS(X1000)	3,848,736	3,226,387	4,078,022	3,603,072
TOTAL CAMPUS BTU CONSUMPTION X 10MIL		1,089	1,431	1,915	2,218
# STEAM GENERATED		7,265,000	8,749,500	13,013,500	1,692,870
BOILER EFFICIENCY (BTU STEAM/BTU F		93.0%	69.0%	78.7%	82.0%
HEATING DEGREE DAY - ACTUAL (MAC)		417	826	1,208	1,588
COOLING DEGREE DAY - ACTUAL (MAC)		0	0	0	0
Chiller - New Central Plant		48	0	0	0
Run - Old Central Plant		0	0	0	0
Times - Chapel		0	0	0	0

1997-98 FUEL & ELECTRICITY CONSUMPTION

		OCT	NOV	DEC	JAN
GAS	QUANTITY-CCF	60,580	137,627	147,676	144,549
	COST-\$	\$20,555.82	\$45,722.06	\$38,797.91	\$35,106.45
	UNIT COST	0.339	0.332	0.263	0.243
	CCF BTUS(X1000)	6,058,000	13,762,700	14,767,600	14,454,900
#2 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	\$0.00	0.0000	0.0000
#6 FUEL OIL	QUANTITY-GAL	0	204	0	9,042
	COST-\$	\$0.00	\$128.89	\$0.00	\$2,678.24
	UNIT COST	0.0000	0.6318	0.0000	0.2962
	OIL BTUS(X1000)	0	30,600	0	1,356,300
TOTAL HEATING BTU (X100k)	QUANTITY-BTU(x1K)	6,058,000	13,793,300	14,767,600	15,811,200
ELECTRICITY	QUANTITY-KWH	1,144,800	1,096,800	1,195,200	936,000
	# BILLING DAYS	29	30	35	32
	KWH PER DAY	39,476	36,560	34,149	29,250
	COST-\$	\$56,190.32	\$49,899.49	\$50,752.79	\$42,517.47
	UNIT COST	0.049	0.045	0.042	0.045
	QUANTITY KW	2,952	2,256	2,040	1,872
	COST-\$	\$14,670.72	\$12,768.96	\$11,546.40	\$10,595.52
	BTUS(X1000)	3,906,058	3,742,282	4,078,022	3,193,632
TOTAL CAMPUS BTU CONSUMPTION X 10MIL		996	1,754	1,885	1,900
# STEAM GENERATED		6,406,000	12,622,100	12,779,300	14,523,200
BOILER EFFICIENCY (BTU STEAM/BTU F		91.8%	80.9%	81.8%	82.8%
HEATING DEGREE DAY - ACTUAL (MAC)		465	1,068	1,160	1,338
COOLING DEGREE DAY - ACTUAL (MAC)		27	0	0	0
Chiller - New Central Plant		169	0	0	0
Run - Old Central Plant		0	0	0	0
Times - Chapel		103	0	0	0

1998-99 FUEL & ELECTRICITY CONSUMPTION

		FEB	MAR	APR	MAY
GAS	QUANTITY-CCF	127,580	117,008	75,952	19,643
	COST-\$	\$27,808.52	\$24,531.35	\$15,853.85	\$5,009.36
	UNIT COST	0.218	0.210	0.209	0.255
	CCF BTUS(X1000)	12,758,000	11,700,800	7,595,200	1,964,300
#2 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	0.0000	0.0000	0.0000
#6 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	0.0000	0.0000	0.0000
	OIL BTUS(X1000)	0	0	0	0
TOTAL HEATING BTU (X100k)	QUANTITY-BTU(x1K)	12,758,000	11,700,800	7,595,200	1,964,300
ELECTRICITY	QUANTITY-KWH	1,101,600	1,039,200	1,130,400	1,000,800
	# BILLING DAYS	29	29	33	32
	KWH PER DAY	37,986	35,834	34,255	31,275
	COST-\$	\$49,097.71	\$47,346.81	\$53,244.68	\$47,022.40
	UNIT COST	0.045	0.046	0.047	0.047
	QUANTITY KW	2,040	2,016	2,256	2,328
	COST-\$	\$11,546.40	\$11,410.56	\$12,768.96	\$13,176.48
	BTUS(X1000)	3,758,659	3,545,750	3,856,925	3,414,730
TOTAL CAMPUS BTU CONSUMPTION X 10MIL		1,652	1,525	1,145	538
# STEAM GENERATED		11,515,840	1,039,090	5,778,500	880,700
BOILER EFFICIENCY (BTU STEAM/BTU F		82.0%	79.9%	68.7%	40.0%
HEATING DEGREE DAY - ACTUAL (MAC)		1,033	921	480	167
COOLING DEGREE DAY - ACTUAL (MAC)		0	0	0	43
Chiller - New Central Plant		0	0	29	240
Run - Old Central Plant		0	0	0	0
Times - Chapel		0	0	0	100

1997-98 FUEL & ELECTRICITY CONSUMPTION

		FEB	MAR	APR	MAY
GAS	QUANTITY-CCF	110,568	126,506	66,498	16,255
	COST-\$	\$26,520.32	\$31,884.38	\$16,972.00	\$4,120.46
	UNIT COST	0.240	0.252	0.255	0.253
	CCF BTUS(X1000)	11,056,800	12,650,600	6,649,800	1,625,500
#2 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	0.0000	0.0000	0.0000
#6 FUEL OIL	QUANTITY-GAL	0	0	0	0
	COST-\$	\$0.00	\$0.00	\$0.00	\$0.00
	UNIT COST	0.0000	0.0000	0.0000	0.0000
	OIL BTUS(X1000)	0	0	0	0
TOTAL HEATING BTU (X100k)	QUANTITY-BTU(x1K)	11,056,800	12,650,600	6,649,800	1,625,500
ELECTRICITY	QUANTITY-KWH	1,034,400	1,161,600	1,039,200	1,000,800
	# BILLING DAYS	29	34	30	29
	KWH PER DAY	35,669	34,165	34,640	34,510
	COST-\$	\$46,017.20	\$48,439.02	\$48,518.00	\$47,022.40
	UNIT COST	0.044	0.042	0.047	0.047
	QUANTITY KW	1,992	2,016	2,208	2,160
	COST-\$	\$11,274.72	\$11,410.56	\$12,497.00	\$12,225.60
	BTUS(X1000)	3,529,373	3,963,379	3,545,750	3,414,730
TOTAL CAMPUS BTU CONSUMPTION X 10MIL		1,459	1,661	1,020	504
# STEAM GENERATED		10,096,600	11,673,700	6,897,100	2,545,500
BOILER EFFICIENCY (BTU STEAM/BTU F		79.9%	79.0%	91.1%	73.4%
HEATING DEGREE DAY - ACTUAL (MAC)		918	1,030	395	58
COOLING DEGREE DAY - ACTUAL (MAC)		0	0	1	90
Chiller - New Central Plant		0	0	73	374
Run - Old Central Plant		0	0	0	0
Times - Chapel		0	0	0	3

1998-99 FUEL & ELECTRICITY CONSUMPTION
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YTD TOTAL

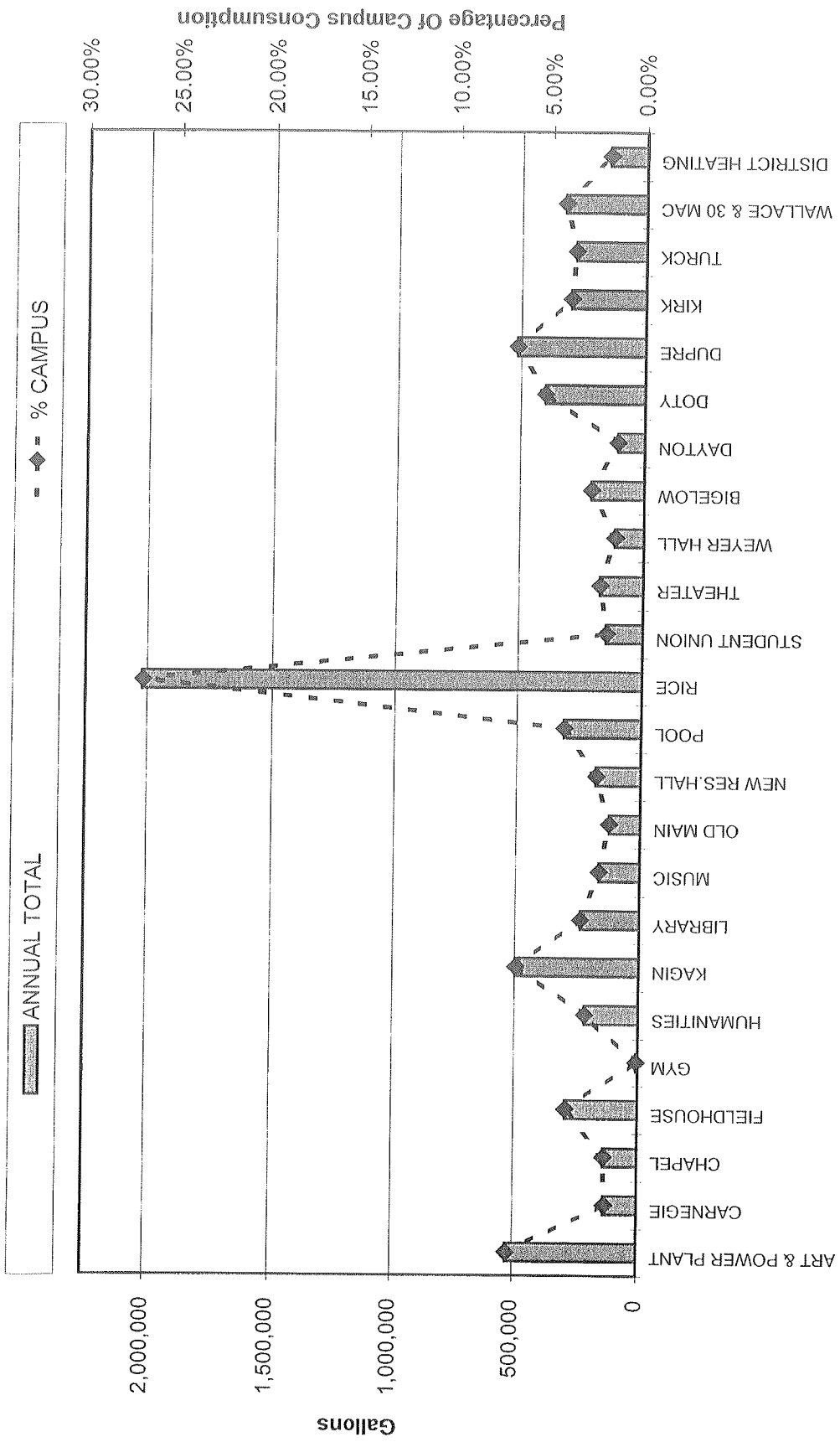
GAS	QUANTITY-CCF	852,336
	COST-\$	\$193,635.41
	UNIT COST	0.227
	CCF BTUS(X1000)	85,233,500
#2 FUEL OIL	QUANTITY-GAL	10,397
	COST-\$	\$3,784.51
	UNIT COST	0.0000
#6 FUEL OIL	QUANTITY-GAL	73
	COST-\$	\$32.85
	UNIT COST	0.4500
	OIL BTUS(X1000)	1,456,133
TOTAL HEATING BTU (X100k)	QUANTITY-BTU(x1K)	86,689,633
ELECTRICITY	QUANTITY-KWH	12,972,000
	# BILLING DAYS	368
	KWH PER DAY	35,250
	COST-\$	\$626,696.94
	UNIT COST	0.048
	QUANTITY KW	26,112
	COST-\$	\$172,471.26
	BTUS(X1000)	44,260,464
<u>TOTAL CAMPUS BTU CONSUMPTION X 10MIL</u>		13,095
# STEAM GENERATED		49,935,000
BOILER EFFICIENCY (BTU STEAM/BTU F		65.9%
HEATING DEGREE DAY - ACTUAL (MAC)		6,788
COOLING DEGREE DAY - ACTUAL (MAC)		88,888
Chiller - New Central Plant		2,421
Run - Old Central Plant		0
Times - Chapel		638

1997-98 FUEL & ELECTRICITY CONSUMPTION
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YTD TOTAL

GAS	QUANTITY-CCF	810,259
	COST-\$	\$220,834.41
	UNIT COST	0.273
	CCF BTUS(X1000)	81,025,900
#2 FUEL OIL	QUANTITY-GAL	0
	COST-\$	\$0.00
	UNIT COST	0.0000
#6 FUEL OIL	QUANTITY-GAL	9,246
	COST-\$	\$2,807.13
	UNIT COST	0.3036
	OIL BTUS(X1000)	1,386,900
TOTAL HEATING BTU (X100k)	QUANTITY-BTU(x1K)	82,412,800
ELECTRICITY	QUANTITY-KWH	12,672,000
	# BILLING DAYS	366
	KWH PER DAY	34,623
	COST-\$	\$608,538.07
	UNIT COST	0.048
	QUANTITY KW	26,640
	COST-\$	\$172,976.12
	BTUS(X1000)	43,236,864
<u>TOTAL CAMPUS BTU CONSUMPTION X 10MIL</u>		12,565
# STEAM GENERATED		77,543,500
BOILER EFFICIENCY (BTU STEAM/BTU F		73.4%
HEATING DEGREE DAY - ACTUAL (MAC)		6,589
COOLING DEGREE DAY - ACTUAL (MAC)		88,888
Chiller - New Central Plant		2,495
Run - Old Central Plant		0
Times - Chapel		1,264

CONDENSATE PER BUILDING

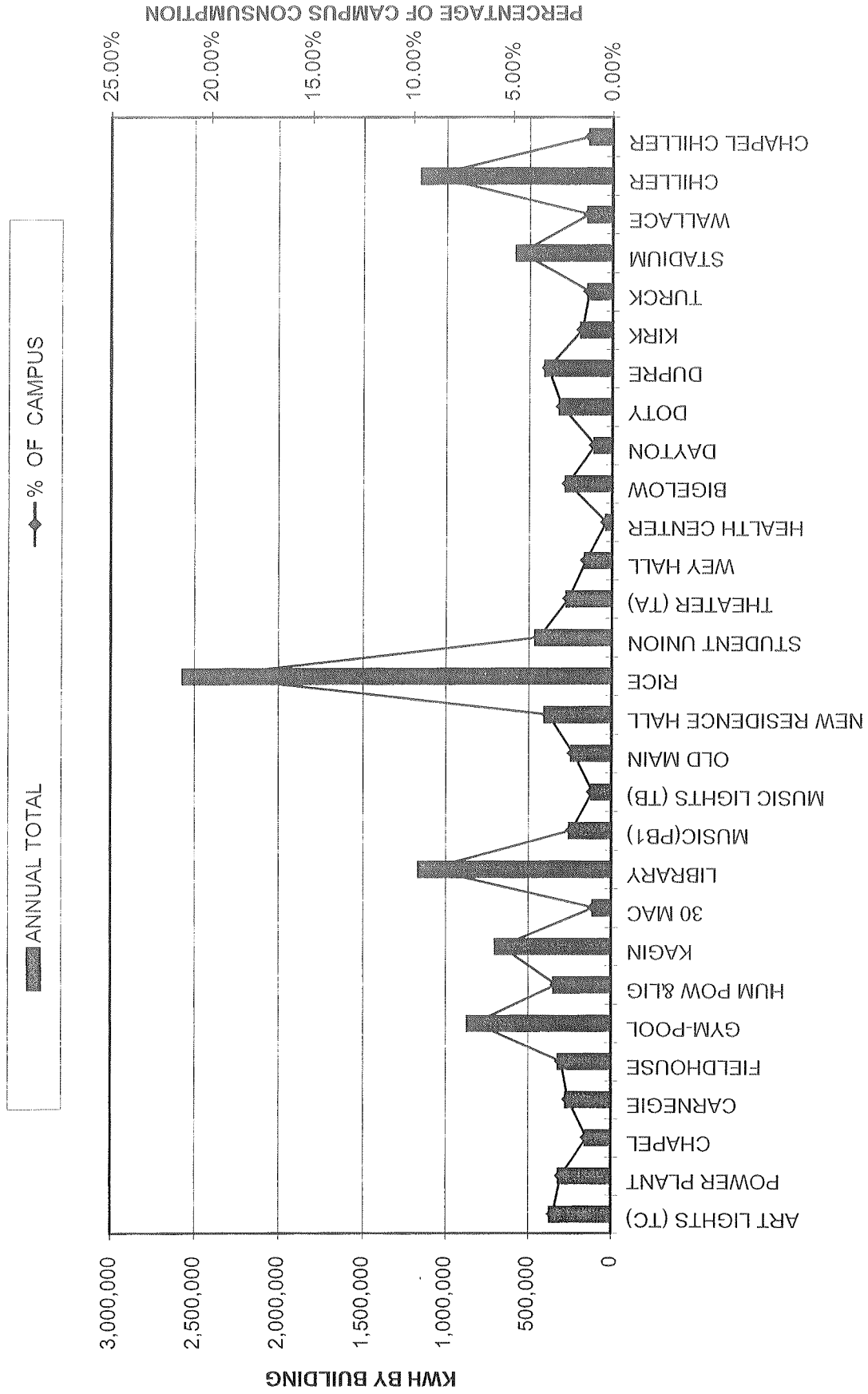


METER READINGS		MAY		JUN		JUL		AUG		SEP	
	READING							READING	UNITS	10/7/98	UNITS
ART & POWER PLANT	1,369,160	0	0	0	0	0	0	1,378,470	9,310		
CARNEGIE	294,140	0	0	0	0	0	0	296,340	2,200		
CHAPEL	1,501,700	0	0	0	0	0	0	1,505,310	3,610		
FIELDHOUSE	4,446,260	0	0	0	0	0	0	4,448,450	2,190		
GYM	134,750	0	0	0	0	0	0	134,950	200		
HUMANITIES	3,547,540	0	0	0	0	0	0	3,550,770	3,230		
KAGIN	976,350	0	0	0	0	0	0	1,014,060	37,710		
LIBRARY	36,760	0	0	0	0	0	0	43,160	6,400		
MUSIC	3,439,770	0	0	0	0	0	0	3,444,620	4,850		
OLD MAIN	368,320	0	0	0	0	0	0	369,870	1,550		
NEW RES.HALL	409,600	0	0	0	0	0	0	413,700	4,100		
POOL	3,494,290	0	0	0	0	0	0	3,507,750	13,460		
RICE	3,456,700	0	0	0	0	0	0	3,492,300	35,600		
STUDENT UNION	809,940	0	0	0	0	0	0	812,060	2,120		
THEATER	3,109,004	0	0	0	0	0	0	3,111,404	2,400		
WEYER HALL	327,690	0	0	0	0	0	0	331,310	3,620		
BIGELOW	447,300	0	0	0	0	0	0	451,140	3,840		
DAYTON	662,850	0	0	0	0	0	0	664,390	1,540		
DOTY	1,572,540	0	0	0	0	0	0	1,579,850	7,310		
DUPRE	1,145,630	0	0	0	0	0	0	1,154,790	9,160		
KIRK	3,680,180	0	0	0	0	0	0	3,686,020	5,840		
TURCK	1,353,410	0	0	0	0	0	0	1,356,340	2,930		
WALLACE & 30 MAC	4,528,690	0	0	0	0	0	0	4,536,110	7,420		
DISTRICT HEATING	1,816,160	0	0	0	0	0	0	1,818,960	2,800		
									173,390		

METER READINGS		OCT		NOV		DEC		JAN	
	11/3/98	READING	UNITS	12/1/98	READING	UNITS	1/5/99	READING	UNITS
ART & POWER PLANT	1,404,380		35,220	1,450,670		46,290	1,579,300	1,720,660	141,360
CARNEGIE	305,590		11,450	320,750		15,160	351,030	377,570	26,540
CHAPEL	1,519,180		13,870	1,536,890		17,710	1,567,600	1,589,410	21,810
FIELDHOUSE	4,469,680		23,420	4,506,890		37,210	4,577,710	4,630,470	52,760
GYM	135,310		560	136,210		900	138,550	140,280	1,730
HUMANITIES	3,561,050		13,510	3,578,160		27,684	3,619,920	3,635,440	37,291
KAGIN	1,034,750		58,400	1,056,040		21,290	1,133,720	1,231,450	97,730
LIBRARY	57,760		21,000	78,670		30,567	118,740	152,140	53,080
MUSIC	3,456,240		16,470	3,480,200		23,960	3,534,560	3,581,710	47,150
OLD MAIN	375,170		6,850	386,710		11,540	417,080	447,570	30,490
NEW RES. HALL	425,600		16,000	444,400		18,800	480,900	511,900	31,000
POOL	3,536,780		42,490	3,573,400		36,620	3,628,830	3,671,180	42,350
RICE	3,597,900		141,200	3,800,500		202,600	4,262,300	4,752,800	490,500
STUDENT UNION	829,420		19,480	849,300		19,880	852,580	852,690	110
THEATER	3,122,984		11,580	3,140,574		17,590	3,182,988	3,217,518	34,530
WEYER HALL	343,460		15,770	362,210		18,750	378,070	392,790	14,720
BIGELOW	463,900		16,600	487,030		23,130	533,500	547,540	36,819
DAYTON	670,420		6,030	679,340		8,920	691,560	699,660	25,982
DOTY	1,603,060		23,210	1,628,150		25,090	1,638,360	1,668,910	82,069
DUPRE	1,189,050		43,420	1,251,860		62,810	1,356,150	1,442,140	85,990
KIRK	3,710,610		30,430	3,744,930		34,320	3,804,480	3,850,840	46,360
TURCK	1,366,390		12,980	1,376,530		38,229	1,389,060	25,390	54,749
WALLACE & 30 MAC	4,563,210		34,520	4,600,180		36,970	4,659,420	4,702,430	43,010
DISTRICT HEATING	1,827,020		10,860	1,844,000		16,980	1,876,120	1,901,160	25,040
			625,320			793,000			1,523,170
						1,586,588			

METER READINGS		FEB		MAR		APR		MAY			
			4/5/99	READING	UNITS		5/3/99	READING	UNITS	6/2/98	
		UNITS									%
ART & POWER PLANT		67,960	1,849,580		60,960		1,879,010		29,430	1,887,400	527,550
CARNEGIE		18,880	412,590		16,140		420,570		7,980	422,770	130,830
CHAPEL		17,510	1,622,050		15,130		1,631,400		9,350	1,635,630	133,930
FIELDHOUSE		43,240	4,711,430		37,720		4,733,000		21,570	4,733,960	289,890
GYM		1,320	142,330		730		142,370		40	142,370	7,820
HUMANITIES		23,449	3,649,900		28,784		3,650,030		28,149	3,650,030	214,011
KAGIN		75,800	1,376,460		69,210		1,418,510		42,050	1,435,020	496,380
LIBRARY		30,590	212,530		29,800		230,280		17,750	235,000	233,977
MUSIC		6,570	3,589,390		1,110		5,630		5,630	7,180	161,650
OLD MAIN		17,860	480,130		14,700		487,600		7,470	489,600	122,830
NEW RES. HALL		27,500	565,100		25,700		578,900		13,800	582,400	176,900
POOL		43,880	3,757,580		42,520		3,780,140		22,560	3,788,430	307,600
RICE		291,600	5,295,200		250,800		5,408,700		113,500	5,440,200	2,019,100
STUDENT UNION		30,620	920,830		37,520		951,540		30,710	951,540	143,720
THEATER		31,600	3,272,897		23,779		3,279,239		6,342	3,279,610	170,606
WEYER HALL		19,880	426,870		14,200		435,320		8,450	437,420	113,350
BIGELOW		29,451	588,130		34,261		583,410		15,280	586,590	209,031
DAYTON		22,020	714,440		13,893		719,810		5,370	719,810	105,072
DOTY		64,540	1,801,820		68,370		1,838,850		37,030	1,848,470	398,587
DUPRE		78,930	1,600,680		79,610		1,641,630		40,950	1,649,890	513,420
KIRK		45,150	3,938,610		42,620		3,963,440		24,830	3,970,760	296,420
TURCK		44,149	75,980		42,114		94,610		18,630	98,620	277,740
WALLACE & 30 MAC		49,200	4,801,840		50,210		4,836,130		34,290	4,842,450	321,180
DISTRICT HEATING		22,660	1,943,340		19,520		1,953,900		10,560	1,956,600	143,240
		1,104,359			1,019,401		551,721		137,885	7,514,834	1

ELECTRICAL CONSUMPTION BY BUILDING



YEAR 1998-99

METER TYPE: ELECTRIC

LOCATION Read Date: 7/6/98 Read Date: 8/5/98 Read Date: 9/3/98 Read Date: 10/7/98 Read Date: Read Date:

JUNE JULY AUGUST SEP OCTOBER

ART LIGHTS (TC)	26231	22100	27172	18820	28167	19900	28559	29840	31208
POWER PLANT	66703	34620	67989	38580	69100	33330	70171	21420	70783
CHAPEL	79046	10620	79642	17880	80246	18120	80799	16590	81127
CARNEGIE	33910	17970	34510	18000	35022	15360	35819	23910	36508
FIELDHOUSE	38881	24570	39667	23580	40482	24450	41441	28770	42227
GYM-POOL	6520	74800	7182	66200	7828	64600	8624	98900	9290
HUM POW & LIG	72872	26480	73981	33270	74504	15690	75893	36670	76706
KAGIN	64655	52260	65563	54480	66492	55740	67886	83640	68808
30 MAC	37019	7132	37873	6405	38773	6750	40276	112725	41595
LIBRARY	807	86400	1031	71680	1267	75520	1649	122240	1966
MUSIC(PB1)	91601	15660	92395	15880	93193	15960	94401	24160	95474
MUSIC LIGHTS (TB)	92138	8090	92534	7920	92923	7780	93517	11880	94042
OLD MAIN	97502	13840	98191	13780	98866	13500	99925	21180	810
NEW RESIDENCE HALL	347273	23605	369354	22081	392735	23381	430799	38064	462748
RICE	4766525	224413	4976897	210372	5174354	197457	5416078	241724	5609393
STUDENT UNION	37757	29720	38559	32080	39341	31280	40532	47640	41365
THEATER (TA)	4843	14500	5402	11180	5930	10560	7142	24240	8373
WEY HALL	73272	12900	73862	11800	74496	12680	75281	15700	75924
HEALTH CENTER	64649	2115	55036	29025	65531	37125	65961	3225	66235
BIGELOW	42054	15180	42265	12660	42478	12780	42900	25320	43283
DAYTON	90523	9765	91160	9535	91637	7155	92384	9705	92818
DOTY	42882	20940	43566	20520	44182	18480	45219	31110	46187
DUPRE	27393	16320	27804	20440	28495	23640	29764	50760	30713
KIRK	5063	3360	5084	3360	5116	5120	5231	18400	5344
TURCK	15620	12630	16235	9225	16847	9180	18263	18420	19093
STADIUM	83097	18400	83322	22500	83505	18300	83786	28100	84101
WALLACE	99827	7875	689	51675	1547	6435	3795	16860	5749
CHILLER	1415220	229350	1686210	270990	1929630	243420	2145620	215990	2172620
CHAPEL CHILLER	30999	920	32308	52360	33627	52760	33963	13440	33989

SUBTOTAL 1,036,565 1,103,668 1,043,041 1,328,171

MAIN METER

1,012,800 1,022,400 1,212,000 1,128,000

% OF MAIN METER

102.35% 107.95% 86.06% 117.75%

YEAR 1998-99

METER TYPE: ELECTRIC

LOCATION	11/3/98		Read Date: __ 12/1/98		Read Date: __ 1/5/99		Read Date: __ 2/3/99		Read Date: __ 3/2/99	
	OCT TOTAL	NOVEMBER	NOV TOTAL	DECEMBER	DEC TOTAL	JANUARY	JAN TOTAL	FEBRUARY	FEB TOTAL	
ART LIGHTS (TC)	30980	32857	32980	34852	39900	36173	26420	37934	35220	
	12240	71392	18270	72069	20310	72447	11340	72867	12600	
	9840	81427	9000	81877	13500	82157	8400	82498	10230	
CARNEGIE	20670	37189	20430	38038	25470	38686	29970	39561	26250	
FIELDHOUSE	23580	42947	21600	43857	27300	44889	30960	46149	37800	
GYM-POOL	66600	9943	65300	10763	82000	11375	61200	12100	72500	
HUM POW & LIG	30360	77684	28770	78763	32970	79560	23910	80532	29160	
	55320	69763	57300	70666	54180	71476	48600	72458	58140	
	9892.5	42912	9877.5	44378	10995	45287	6817.5	46861	10305	
LIBRARY	101440	2268	96640	2646	120960	3094	143360	3237	45760	
MUSIC(PB1)	21460	96522	20960	97967	28900	99200	24660	345	22900	
MUSIC LIGHTS (TB)	10500	94552	10200	95172	12400	95634	9240	96201	11340	
OLD MAIN	17700	1773	19260	3307	30680	4427	22400	5773	26920	
NEW RESIDENCE HALL	31949	494637	31889	538252	43615	576413	38161	623075	46662	
RICE	193225	5811677	202374	6059412	247735	6241708	182296	6455910	214202	
STUDENT UNION	33320	42159	79400	43145	39440	43820	27000	44878	42320	
THEATER (TA)	24620	9737	27280	11241	30080	12392	23020	13870	28660	
WEY HALL	12860	76463	10780	77227	15280	77965	14760	78753	15760	
HEALTH CENTER	1960	66478	1897.5	66831	2647.5	67388	4177.5	67999	4582.5	
BIGELOW	22980	43688	24300	44226	32280	44643	25020	45203	33600	
DAYTON	8010	93369	8265	94001	9480	94270	4035	95011	11115	
DOTY	29040	47144	28710	48180	31080	48830	19500	49800	29100	
DUPRE	37960	31689	38240	32656	39480	33191	21400	34179	39520	
KIRK	18080	5483	22240	5626	22880	5727	16160	5878	24160	
TURCK	12600	19936	12645	20739	12045	21156	6255	22064	13620	
STADIUM	31500	84752	65100	85850	109800	86765	91500	87544	77900	
WALLACE	14655	7578	13717.5	9551	14797.5	11002	10882.5	13394	17940	
CHILLER	27000	2172620	0	2172620	0	2172620	0	2172620	0	
CHAPEL CHILLER	1040	34016	1080	34052	1440	34078	1040	34107	1160	

YEAR 1998-99

METER TYPE: ELECTRIC

LOCATION	Read Date: 4/5/99		Read Date: 5/3/99		Read Date: 6/1/98		% OF
	MARCH	MAR TOTAL	APRIL	APR TOTAL	MAY	MAY TOTAL	
							CAMPUS
ART LIGHTS (TC)	39787	37060	41448	33220	25126	42770	369,210
POWER PLANT	73444	17310	74158	21420	65549	74870	316,310
CHAPEL	82875	11310	83336	13830	83875	16200	155,520
CARNEGIE	40447	26580	41186	22170	33311	25816	272,596
FIELDHOUSE	47332	35490	48057	21750	48675	18540	318,390
GYM-POOL	12892	79200	13578	68600	14243	66500	866,400
HUM POW & LIG	81632	33000	82614	29480	83549	28050	346,770
KAGIN	73482	61440	74510	61680	75446	56160	698,940
30 MAC	48226	11737.5	49577	10132.5	50825	9360	110,677
LIBRARY	3582	110400	3883	96320	4162	89280	1,160,000
MUSIC(PB1)	1492	22940	2512	20400	3411	17980	251,860
MUSIC LIGHTS (TB)	96792	11820	97334	10840	97771	8740	120,740
OLD MAIN	7088	26300	8075	19740	8924	16980	242,280
NEW RESIDENCE HALL	669016	45941	698460	29444	727298	28838	403,630
RICE	6697353	241443	6905911	208558	7112132	206221	2,570,020
STUDENT UNION	45866	35337	46741	35000	47451	28400	460,937
THEATER (TA)	15402	30640	16877	29500	17884	20140	274,420
WEY HALL	79589	16720	80196	12140	80811	12300	163,680
HEALTH CENTER	68574	4312.5	68845	2032.5	69140	2212.5	35,798
BIGELOW	45774	34260	46149	22500	46468	19140	280,020
DAYTON	95829	12270	96562	10935	97043	7215	107,565
DOTY	50906	33180	51870	28920	52704	27600	318,180
DUPRE	35302	44920	36300	39920	37130	33200	405,800
KIRK	6032	24640	6145	18080	6225	12800	189,280
TURCK	23100	15540	24025	13875	24780	11325	147,420
STADIUM	88191	64700	88513	32200	88708	19500	579,500
WALLACE	15762	17750	17453	12682.5	18743	9675	148,448
CHILLER	2172620	0	2207840	35220	2336350	128510	1,150,480
CHAPEL CHILLER	34140	1320	34168	1120	34447	11160	138,840

SUBTOTAL 1,107,571 961,750 1,049,483 12,603,710 1

MAIN METER 1,039,200 1,130,400 1,000,800 12,972,000

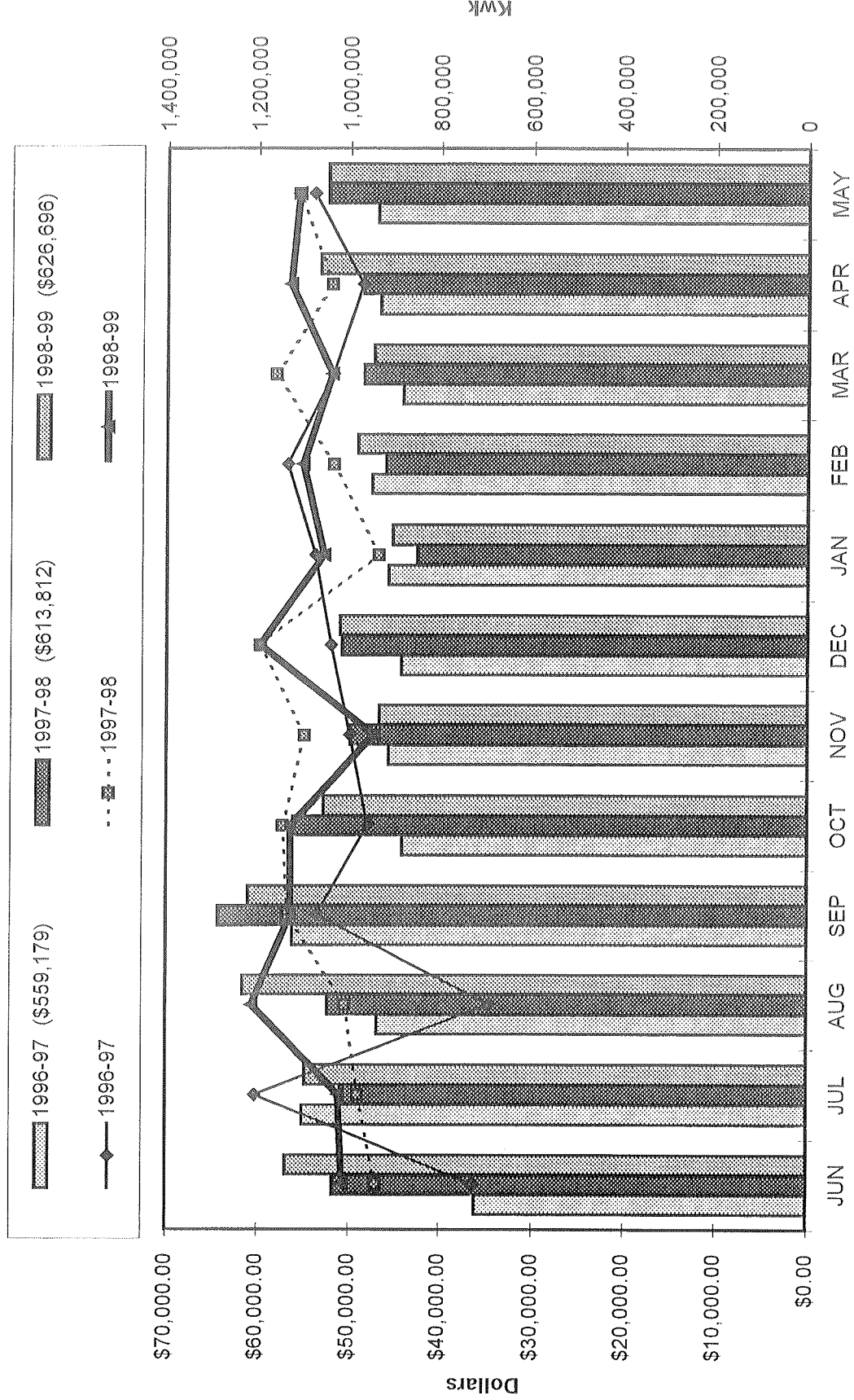
% OF MAIN METER 106.58% 85.08% 104.86% 97.16%

MONTHLY ENERGY REPORT MAY, 1999	MONTHLY DATA			MONTHLY BUDGET	VARIANCE W/ BUDGET
	PREVIOUS YEAR ACTUAL	VARIANCE W/ PREV YR ACT	CURRENT MONTH ACTUAL		
-Consumption (KWH)	1,072,800	(64,800)	1,008,000	1,050,000	42,000
-Cost	\$46,988.51	33.89	\$47,022.40	\$51,450.00	4,428
-Cost Per KWH	\$0.04380	\$0.00	\$0.04665	\$0.04900	0
-Demand(KW)	1,896	432	2,328	2,184	(144)
-Cost	\$10,731.36	\$2,445.12	\$13,176.48	\$12,361.00	(815)
-Cost Per KW	\$5.66	\$0.00	\$5.66	\$5.66	0
-# Of Billing Days	33	(1)	32	31	(1)
-Consumption Per Day (KWH)	32,509	(1,009)	31,500	33,871	2,371
FUEL OIL & GAS					
-Gas Consumption (CCF)	16,255	3,388.00	19,643	80,000	77,894
-Cost	\$4,120.46	\$888.90	\$5,009.36	\$20,800.00	15,791
-Cost Per CCF	\$0.2535	\$0.00	\$0.2550	\$0.2600	0.00
-Fuel Oil Consumption (Gallons)	0	0	0	0	0
-Cost	0	\$0.00	0	0	0
-Cost Per Gallon	0	\$0.00	0	0	0
-Total G&O BTU Consump (x100K)	16,255	3,388	19,643	24,850	77,894
-Total Cost Per BTU (x100K)	0	\$0.00	0	\$0.50	0
-Consumption Per Day BTU (x100K)	542	113	655	802	147
TOTAL ENERGY COST	\$51,108.97	\$922.79	\$52,031.76	\$72,250.00	20,218
ENERGY CONSUMPTION BTU (x100K)	52,859	1,177	54,036	60,676	6,640
HEATING DAYS	216	(49)	167	175	8
COOLING DAYS	35	8	43	29	(14)
ELECTRICITY					
-Consumption KWH	12,744,000	235,200	12,979,200	12,500,000	(479,200)
-Cost	\$608,504.55	\$18,192.39	\$626,696.94	\$612,500.00	(14,197)
-Cost Per KWH	\$0.04697	\$0.0013	\$0.04828	\$0.04900	0
-Consumption KW	26,064	48	26,112	22,560	(3,552)
-Cost	\$168,889.44	\$3,581	\$172,470.72	\$142,376	(30,095)
-Cost Per KW	\$6.31128	\$0.00	\$6.31128	\$6.31	(0)
-# Of Billing Days	372	-4	368	365	(3)
-Consumption Per Day (KWH)	34,258	1,012	35,270	29,041	(6,228)
FUEL OIL AND GAS					
-Total G&O BTU Consump (x100K)	824,128	42,768	866,896	1,150,000	1,147,996
-Total Cost Per BTU (x100K)	\$0.24	(\$0.0148)	\$0.2300	\$0.26	0.03
-Consumption Per Day BTU (x100K)	2,215	140	2,356	3,151	795
TOTAL ENERGY COST	\$832,146.04	(7,996)	\$824,150	\$912,500	\$88,350
ENERGY CONSUMPTION BTU (x100K)	1,258,953	41,779	1,300,732	1,576,500	317,547
HEATING DAYS	7,131	(325)	6,806	7,384	578
COOLING DAYS	635	115	750	859	109

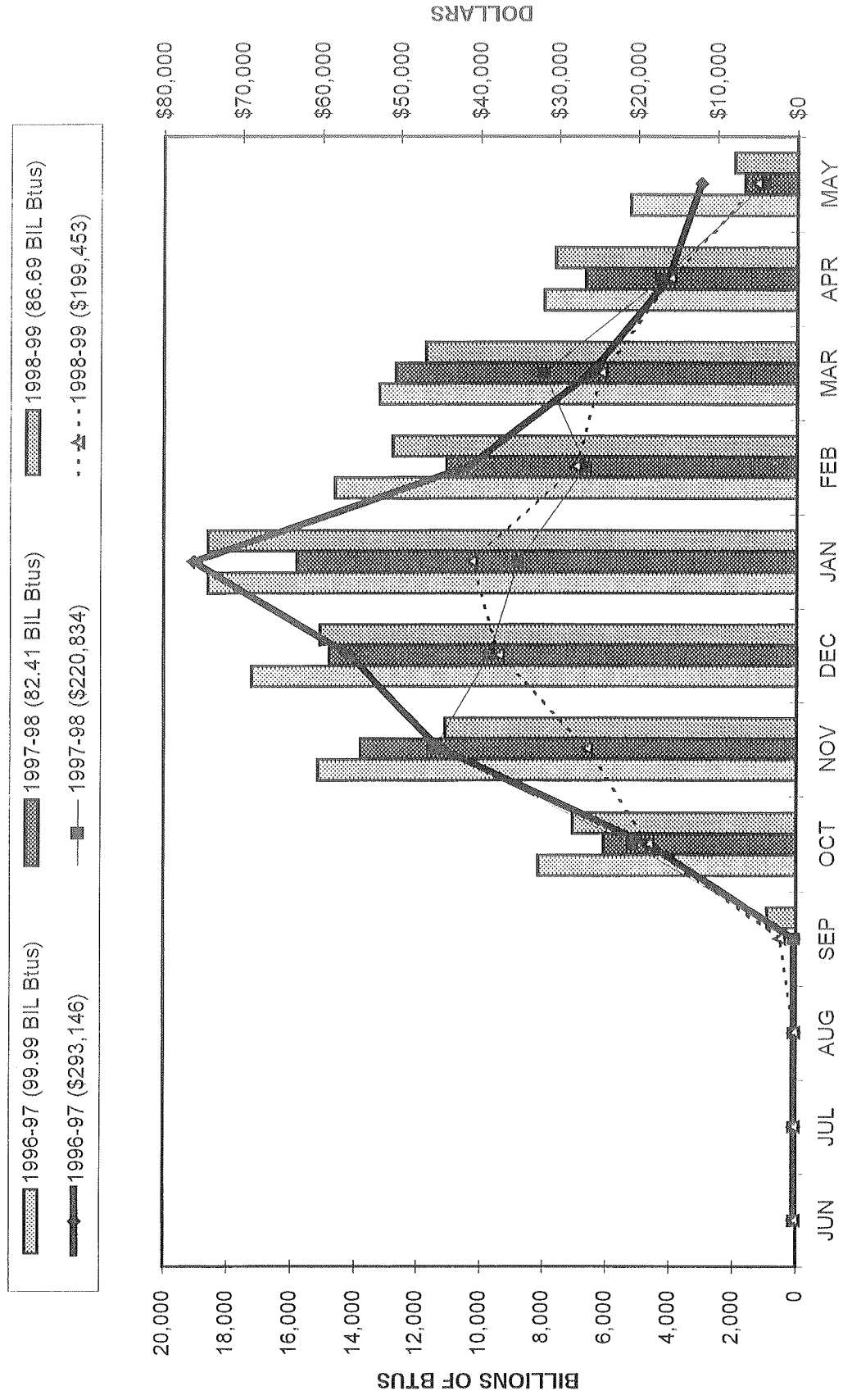
MACALESTER COLLEGE
MONTHLY ENERGY BUDGET REPORT
JUNE 1998 - MAY 1999

ENERGY TYPE	QUANTITY CONSUMED	EXPENDITURE	BUDGETED CONSUMPTION (BTUs/KWH)	BUDGETED TOTAL EXPENDITURE	ESTIMATED TOTAL CONSUMPTION	ESTIMATED TOTAL EXPENDITURE
	6/1/98 5/31/99	6/1/98 5/31/99	6/1/98 5/31/99	6/1/98 5/31/99	6/1/98 5/31/99	6/1/98 5/31/99
GAS (CCF)	852,335	\$193,635.41			852,335	\$193,635.41
OIL (GAL.)						
#6	73	\$32.85			73	\$32.85
#2	10397	\$3,784.51			10,397	\$3,784.51
TOTAL BTUs (* 1,000)	86,689,633	\$197,452.77	115,000,000	\$300,000.00	86,689,633	\$197,452.77
ELEC. (KWH)	12,972,000	\$626,696.94	12,500,000	\$612,500.00	12,972,000	\$626,696.94
TOTAL EXPENDED	130,950,097	\$820,365.20	157,650,000	\$912,500.00	130,950,097	\$824,149.71
VARIANCE: BUDGET VS EST						\$88,350.29 =====
FUEL VARIANCE						
CONSUMPTION						(\$73,853.13)
PRICE						(\$28,694.10)
SUB-TOTAL						(\$102,547.23)
ELEC VARIANCE						
CONSUMPTION						\$23,128.00
PRICE						(\$8,931.06)
SUB-TOTAL						\$14,196.94
TOTAL FUEL AND ELEC VARIANCE						(\$88,350.29) =====

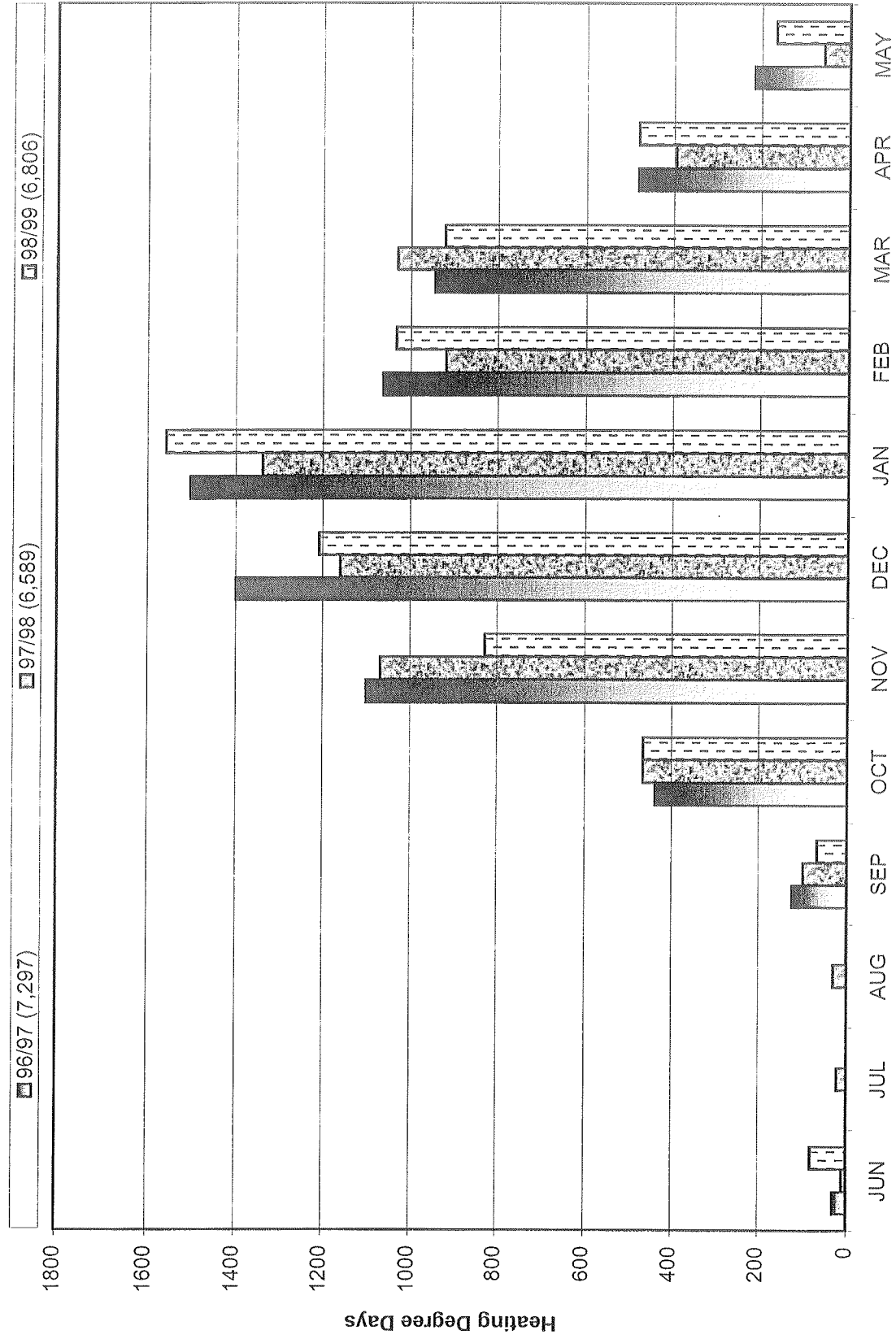
3 YEAR ELECTRICAL COST/CONSUMPTION COMPARISON



3 YEAR BTU/COST COMPARISON



3 YEAR HEATING DEGREE COMPARISON



PAST ENERGY DATA 1984-1999

YEAR	ACTUAL HEATING DEGREE DAYS	BTUs CONSUMED x1,000,000	TOTAL FUEL COST	FUEL COST PER 100k BTU	KWH CONSUMED	TOTAL ELECTRIC COST	ELECT COST PER KWH	TOTAL SQUARE FEET	TOTAL BTU CONSUM (X1000k)	TOTAL BTU COST	BTU CONSUMP PER FOOT	COST per X1000K
84-85	7,632	100,514	\$401,058	0.3990	8,767,200	\$364,038	0.042	846,365	130,428	\$765,096	154,103	\$5.8661
85-86	7,852	91,852	\$328,917	0.3581	8,611,200	\$361,161	0.042	846,365	121,233	\$690,078	143,240	\$5.6921
86-87	6,238	86,956	\$186,058	0.2140	8,407,200	\$330,664	0.039	846,365	115,641	\$516,722	136,633	\$4.4683
87-88	7,138	98,071	\$235,637	0.2403	8,894,600	\$376,025	0.042	846,865	128,419	\$611,662	151,641	\$4.7630
88-89(1)	7,817	100,426	\$231,792	0.2308	9,900,000	\$418,470	0.042	846,365	134,205	\$650,262	158,566	\$4.8453
89-90(2)	8,181	99,062	\$232,017	0.2342	9,614,400	\$431,765	0.045	938,865	131,866	\$663,782	140,453	\$5.0337
90-91(3)	7,795	98,739	\$251,671	0.2549	10,459,200	\$463,053	0.044	944,865	134,426	\$714,724	142,270	\$5.3169
91-92	7,915	92,268	\$159,770	0.1732	10,699,200	\$473,973	0.044	944,865	128,774	\$633,743	136,288	\$4.9214
92-93(4)	7,296	95,977	\$165,834	0.1728	10,420,800	\$480,192	0.044	966,865	131,533	\$646,026	136,040	\$4.9115
93-94(5)	7,098	85,173	\$212,107	0.2490	10,384,173	\$487,722	0.047	972,865	120,604	\$699,829	123,968	\$5.8027
94-95	6,139	77,444	\$155,667	0.2010	10,454,200	\$509,883	0.049	972,865	113,114	\$665,550	116,269	\$5.8839
95-96(6)	7,921	91,589	\$211,776	0.2312	10,836,825	\$531,951	0.049	972,865	128,564	\$743,726	132,149	\$5.7849
96-97(7)	7,297	99,991	\$293,146	0.2932	11,983,679	\$559,179	0.049	1,018,615	140,879	\$852,326	139,404	\$5.8647
97-98(8)	6,589	82,412	\$223,642	0.2714	12,782,400	\$613,894	0.048	1,056,615	126,026	\$837,536	119,273	\$6.6458
98-99	6,806	86,670	\$197,453	0.2278	12,972,000	\$626,697	0.048	1,056,615	130,930	\$824,150	123,915	\$6.2946
1. Library built and on line.												
2. Weyerhaeuser Hall renovated--a/c added.												
3. Carnegie Hall renovated--a/c added along with more usable area.												
4. Humanities renovated--additional space and a/c.												
5. Old Main renovated--additional space and a/c.												
6. Rice renovation under way--construction heat throughout the year.												
7. Rice operational with new mechanical systems, Olin's construction heat supplied by gas kiln meter--not reflected in this report.												
8. New Residence Hall put on-line in August, 1997. Additional 38,000 square feet of area. First air conditioned residence hall.												

HEATING DEGREE DAY VS BTU CONSUMPTION PER FOOT

